

An augmented cognitive behavioural therapy for treating post-stroke depression: description of a treatment protocol

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An augmented cognitive behavioural therapy for treating post-stroke depression: description of a treatment protocol

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This series of articles for rehabilitation in practice aims to cover a knowledge element of the rehabilitation medicine curriculum. Nevertheless they are intended to be of interest to a multidisciplinary audience. The competency addressed in this article is psychologist, occupational therapists, movement therapists and physicians working in rehabilitation medicine.

Abstract

Aim: Currently, no evidence-based treatment is available for mood problems after stroke. We present a new psychological intervention designed to reduce depressive complaints after stroke.

Method of protocol development: This intervention was based on cognitive behavioural therapy principles and was shown feasible in a pilot study. In order to meet the specific needs of stroke patients (concerning both sensori-motor, cognitive, and behavioural problems), we incorporated motivational interviewing, grief resolution, and psycho-education. We emphasised for each session to take into account the cognitive deficits of the patients (i.e. be concrete, accessible, structured, specific, and repeat information). Moreover, we augmented the psychologist-administered therapy with the contribution of an occupational or movement therapist aimed at facilitating patients' goal-setting and attainment. The intervention consisted of 12 one-hour sessions with a psychologist and three or four one-hour sessions with an occupational or movement therapist. Currently, the effectiveness of the intervention is evaluated in a randomised controlled trial.

Discussion: The proposed psychological treatment protocol is innovative, as it applies cognitive behavioural therapy in a stroke-specific manner; moreover, it supports goal attainment by incorporating occupational or movement therapy sessions.

Keywords

Stroke, depression, anxiety, treatment protocol, cognitive behavioural therapy

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Introduction

Following a stroke, approximately 70% of survivors experience considerable long-term sensorimotor, cognitive, and/or behavioural impairments. These impairments often limit normal daily life activities and may restrict social participation,¹⁻³ which may lead to feelings of depression. Although the reported prevalence of mood complaints varies, approximately more than 30% of all stroke survivors experience severe emotional complaints⁴⁻⁶ that negatively impact their quality of life.^{7,8}

Developing treatment programmes for depressive symptoms in patients after stroke requires a basic understanding of the underlying aetiology. This aetiology has been the subject of considerable debate. Researchers that investigated neuroanatomical and neurochemical substrates of post-stroke depression have not been able to establish that post-stroke depression can be attributed to a particular type of stroke or level of stroke severity.⁹⁻¹¹ Moreover, it has been suggested that the relationship between functional impairments and post-stroke depression is mediated by the significance that the patient attributes to his/her impairments.^{12,13} From this perspective, post-stroke depression may be viewed as the result of an inadequate adjustment to the consequences of stroke. Therefore, it is important to address the reactive aspects of post-stroke depression when developing a psychological intervention for depressive complaints after stroke. Additionally, since post-stroke depression often coincides with increased anxiety,^{4,14,15} feelings of anxiety should also be taken into account in such an intervention.

Mood disturbances after stroke are commonly treated with pharmacological agents. However, the benefits of pharmacotherapy in the treatment of post-stroke depression are debatable.¹⁶ Psychological interventions are used less frequently, possibly because their effects are also unclear.¹⁷⁻¹⁹ Yet, such interventions have yielded beneficial effects on mood disturbances in patients with other chronic disorders, such as cancer and diabetes.^{20,21} Within the broad field of psychotherapy, cognitive behavioural therapy seems one of the most promising methods to address post-stroke depression. In this respect, it is important to note

that cognitive behavioural therapy was recently found to be beneficial for treating post-stroke fatigue.²² The core assumption in cognitive behavioural therapy is that thoughts – rather than external factors such as people, situations, or events – drive feelings and behaviours. If one can change the way patients think, this can improve their feelings and actions, even if the situation does not change. A key advantage of cognitive behavioural therapy over pharmacotherapy is that it is more effective at preventing the relapse of emotional symptoms, as it causes structural changes in irrational cognitions and negative thoughts.²³ Another advantage is that cognitive behavioural therapy has a more favourable side-effect profile than pharmacotherapy.¹⁶

The goal of the current article is to present a new psychological treatment protocol for post-stroke depression based on cognitive behavioural therapy, which is currently evaluated in a multicentre randomised controlled trial as part of the Restore4Stroke study in the Netherlands²⁴ (Dutch Trial Register NTR2999). We will first describe the theoretical background of the treatment protocol, followed by the content of the intervention, and a comprehensive discussion. Two case descriptions are presented in boxes to illustrate how the protocol can be applied in clinical practice.

Theoretical background

The psychological treatment of post-stroke depression is still in its infancy. The application of conventional cognitive behavioural therapy for post-stroke depression has not yielded unambiguous results yet. To date, only one randomised controlled trial examined the effect of cognitive behavioural therapy on post-stroke depression. In this trial, Lincoln and Flannaghan²⁵ found no group differences of cognitive behaviour therapy vs. interviews. The authors acknowledged that their study had several methodological shortcomings, such as early inclusion after stroke (<1 month), low therapy intensity, and the use of a relatively inexperienced therapist who participated in both interventions, thereby running the risk of ‘contamination’.²⁵ Most importantly, the cognitive behavioural therapy did not take into account individual cognitive and/or sensorimotor deficits, nor were the participants

provided with practical advice about how to achieve behavioural change.

Many stroke patients have sensory, motor, and/or cognitive impairments that limit their behavioural potential. Therefore, challenging and modifying irrational and negative thoughts using traditional cognitive behavioural therapy does not necessarily lead to effective behavioural changes. Cognitive impairments may lead to problems with information processing and, for instance, the correct understanding of the content of interventions. Stroke patients also may lack processing speed and can experience memory problems, which complicates the course of therapy. In addition, after having experienced a traumatic event (i.e. stroke), patients regularly misinterpret their bodily sensations, inducing fear and anxiety, which may hamper the process of behaviour change. Also, grief that accompanies a traumatic event makes the patient less receptive to cognitive behavioural therapy.

In an attempt to take into account these impairments, and to enhance the applicability of cognitive behavioural therapy in the treatment of post-stroke depression, Broomfield et al.²³ recommended the integration of the following five psychological approaches that will be illustrated in the procedure section.

- *Motivational interviewing*.^{26,27}
- *Grief resolution*.²⁸
- *Cognitive deficits adaptation*.²⁹
- *Selective optimisation with compensation*.^{23,30,31}
- *Executive skills training*.²³

Method of protocol development

We previously conducted a pilot study to assess the feasibility of cognitive behavioural therapy in five patients. An existing cognitive behavioural therapy intervention developed for patients with chronic disease³² was modified to fit the cognitive impairments of stroke patients.³³ We reduced the amount of information and repeated information several times throughout the intervention. The intervention reduced mood complaints in three out of five patients. Next to that, we showed that the

intervention was feasible. After evaluation of this pilot study, we further developed the protocol by incorporating the recent suggestions of Broomfield and colleagues as follows.²³

1. Throughout the treatment, the psychologist used *motivational interviewing* to enhance the patient's motivation for behavioural change.^{26,27} By asking open-ended questions, discussing pros and cons of behaviour change, and by addressing goal planning to bring about behavioural change, the patient was encouraged to be creative and think autonomously for setting therapy goals and find ways to improve his/her self-efficacy (see Box 1).
2. Early in the treatment protocol, the psychologist promoted *grief resolution* by explaining the phases of bereavement and by discussing the effects of reduced physical independence, mobility, cognitive capacity, and emotional control on self-esteem and future perspective (see Box 1).
3. Throughout the treatment, cognitive impairments were taken into account when explaining and implementing the principles of cognitive behavioural therapy.³⁴ In line with '*cognitive deficits adaptation*', the psychologist used cognition schemes to explain the relationship between thoughts, feelings, and actions in a step-by-step fashion (see Figure 1). In addition, the intensity of therapy sessions was adjusted to the patient's cognitive capacities, while psychologists were instructed to adjust their communication style to the patient's functional level through the consistent use concrete, repetitive, accessible, structured, and specific (CRASS) communication principles.³⁵ For example, therapists communicated the essentials of therapy by talking slowly, illustrating them with tangible examples, while avoiding professional jargon. During each session, the psychologist repeatedly mentioned the most important components, thereby ensuring that the patient fully understood all key elements. 'Take home' information sheets also described the most important therapy components.

4. The most crucial adjustment of our treatment protocol was based on '*selective optimisation with compensation*'. Based on this approach, the psychologist-administered cognitive behavioural therapy was augmented with three sessions of occupational or movement therapy to facilitate goal-setting and attainment. An occupational or movement therapist supported patients with functional limitations (or doubts about their capacities) by first identifying meaningful personal goals and then helping them to achieve these goals.
5. When a patient reported feelings of anxiety in addition to depressive complaints, cognitive behavioural therapy also addressed anxiety-related thoughts and problems. Moreover, a fourth occupational or movement therapy session was planned to teach the patient relaxation techniques (e.g. breathing exercises), as advised by the Dutch Heart Foundation.³⁶ The aim of this extra session was to alleviate anxiety-driven bodily tension that might impede the patient's ability to reach his/her activity-related goals.

Box 1: Motivational interviewing and grief resolution.

Patient MC used to be a consultant in organisation management. After his stroke, he experienced considerable difficulty resuming his professional work, causing loss of self-esteem and sense of identity. When discussing therapy goals, at first, MC aimed to regain his old job. By posing an open-ended question about the way he thought he would attain this goal, MC gradually realised that regaining his former job was out of reach. Moreover, by making a pro-con list, he realised that sticking to the current situation would cost too much energy and lead to many mistakes. Before encouraging him to think about other types of occupation, the psychologist stimulated MC to reflect on and discuss the grief and emotional impact of his vocational loss.

Procedure

Table 1 gives an overview of the content of the treatment protocol.

Target group. This treatment protocol was designed for the Restore4Stroke randomised controlled trial aimed at patients with chronic mood complaints after stroke; until now, the protocol has been applied in this trial only.²⁴ Stroke patients with a pretreatment score of >7 on the depression subscale of the Hospital Anxiety and Depression Scale were eligible for participation (see Table 1). Although the Hospital Anxiety and Depression Scale anxiety subscore was not regarded for inclusion, it was used to individualise the treatment, for instance to indicate the need of additional relaxation exercises. The following exclusion criteria were applied: insufficient communication skills, a diagnosis of a 'major depression' that required pharmacotherapy (based on the medical file), and a history of prestroke mood disorder or any comorbidity that could affect mood.¹²

Role of therapists. The treatment protocol was administered by a certified, experienced healthcare psychologist who was familiar with treating depression and providing rehabilitation to patients with stroke. Prior to working with the protocol, each psychologist received two hours of training by an expert psychologist with ample experience in cognitive behavioural therapy. If needed, the expert psychologist was available for assistance throughout the intervention. To prepare the goal-setting stage, the psychologist selected either an occupational or movement therapist, depending on the patient's tentative goals: an occupational therapist was preferred when the goals included optimising activities in the domains of self-care, leisure, household, and/or work; a movement therapist was chosen when the goals included improving mobility-related activities, such as sports and walking. Because of their education and experience, occupational and movement therapists are optimally equipped to assess patients' individual functional limitations and identify potential compensatory strategies. They worked in parallel with the psychologist to successfully translate the patients' goals into daily life and help them achieve behavioural change. By maintaining close contact with the individual patient and the treating psychologist, it was ensured that all parties adhered to the same

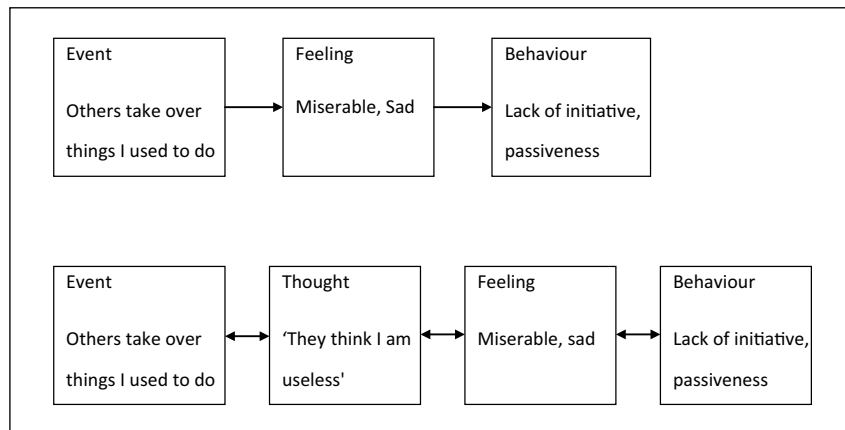


Figure 1. Hidden cognition scheme as it is introduced in the expanded four-step scheme (bottom row). The top row shows the simplified three-step scheme.

Table 1. Characteristics of the protocol: Augmented Cognitive Behavioural Therapy.

| | |
|------------------------|---|
| Inclusion criteria | Patients with post-stroke depression with or without anxiety as defined by a depression sub-score on the HADS >7. Any type of stroke in the past. Depressed mood occurring >6 months post-stroke. Sufficient communication skills. |
| Exclusion criteria | Patients with prestroke physical disability (Barthel Index: <19/20). Inpatients. Co-morbidity that could affect mood. Diagnosis of 'major depression' requiring medication. Diagnosis of prestroke depression or previous psychiatric care for depression. |
| Therapists' competence | <i>Psychologist:</i> Healthcare psychologist with CBT experience and familiarity with stroke rehabilitation. <i>Occupational or movement therapist:</i> Familiarity with stroke rehabilitation. <i>Both therapists:</i> Received training by developer of protocol for correct application. |
| Location | <i>Psychologist sessions:</i> In the psychologist's office. <i>Occupational or movement therapist sessions:</i> In the rehabilitation facility, at various locations within the community, or at the patient's home. |
| Number of sessions | 15–16 individual sessions over a period of four months; 11 sessions with the psychologist and one session with both the psychologist and the occupational or movement therapist; 3–4 additional sessions with the occupational or movement therapist alone. |
| Duration of session | One hour per week, with each session comprised of two blocks of 20–25 minutes separated by a 10–15 minute break. |
| Materials | Protocol booklet for therapist; ACS cards for photo interview; homework assignment booklet for patient. |
| Tailoring | The psychologist has certain degrees of freedom concerning content of the final sessions, either attention to problems with acquired skills or evaluation of the intervention, depending on the patient's progress. |

ACS: Activity Card Sorting; CBT: cognitive behavioural therapy; HADS: Hospital Anxiety and Depression Scale.

treatment principles, while the psychologist kept the lead in the intervention.

In the case of increased anxiety (i.e. Hospital Anxiety and Depression Scale anxiety subscore >7), the patient received a fourth session with the therapist that was entirely devoted to teaching relaxation techniques.

Treatment stages. The treatment protocol consisted of 15–16 individual treatment sessions. Twelve sessions were administered by the psychologist, and three (or four) additional sessions by the occupational or movement therapist. The treatment protocol consisted of five successive stages (see Table 2).

1. In *Stage 1* (three sessions), the psychologist began building rapport with the patient and creating a safe atmosphere by striving to experience the world from the patient's perspective without judgement or criticism. This was followed by grief resolution, which entailed reassurance of the patient with regard to emotional reactions to the consequences of his/her stroke by explaining that such reactions are normal after a painful and threatening life event (see Box 1). After that, psycho-education encompassed the provision of information about the consequences of stroke and useful compensatory strategies. In addition, the psychologist emphasised the relationship between becoming more active in daily life and the positive impact on emotions and behaviour.
2. *Stage 2* (two sessions) was the goal-setting stage. The first of the two sessions was administered by the psychologist; the second was multidisciplinary and delivered together with the occupational or movement therapist. In line with CRASS principles, the protocol was made 'accessible' to the patient using the Activity Card Sorting. This tool facilitated the discussion about the patient's personal activities and attainable goals.³⁷ The Activity Card Sorting consists of 78 pictures representing people engaged in a wide array of activities, including leisure, sports, and daily life activities. Thus, the stroke patient was given concrete examples to help him/her select personal goals. In preparation for the goal-setting sessions, patients listed the Activity Card Sorting cards most relevant to them as homework assignment to become familiar with the themes of the cards.
 - In the first goal-setting session prestroke activity levels were discussed, using the Activity Card Sorting cards that the patient had selected. The psychologist and patient then discussed the patient's current activity levels. Finally, activities that could help achieve the patient's desired future situation were addressed, resulting in five tentative therapy goals. The content of these goals determined whether the psychologist contacted either the occupational or movement therapist. The psychologist introduced the patient to the therapist and together they prepared the multidisciplinary session.
 - During the second session, each goal was discussed with respect to its feasibility. The psychologist and therapist, together with the patient, designed a concrete and realistic plan. This plan encompassed three specific agreed-upon therapy goals, taking into account the patient's cognitive and physical limitations. This plan detailed the contents and timing of the three additional sessions in the following two stages with the occupational or movement therapist.
3. In *Stage 3* (two sessions), the psychologist used cognitive behavioural therapy to help the patient recognise the thoughts that triggered negative mood and behaviour (see Box 2). In these sessions, the psychologist used schemes to explain negative and positive cognitions and to prepare the homework assignments (see Figure 1).
 - First, the psychologist explained a 'three-step sequence' of occurrences: *events* leading to *feelings* leading to *behaviour* (event → feeling → behaviour). The patient was taught that events engender feelings, which in turn influence behaviour. The patient was then encouraged to think of specific events in his/her daily life that led to negative feelings and subsequent behaviour. When he/she

Table 2. Structure of the protocol (psychologists' sessions).

| Stage | Topic | Session | Therapeutic content | How: Therapeutic techniques | Homework |
|--|-----------------------------------|---------|--|---|---|
| 1. Purpose: Helping patients recognise their problems and provide information about post-stroke depression | | | | | |
| 1 | Acquaintance and psycho-education | 1 | Building rapport | Introduction, getting to know the patient and creating a safe atmosphere for problem disclosure | R: Information leaflet A: Problem description |
| | | 2 | Recognising bereavement and loss | Grief discussion, checking homework compliance | R & A: See Session 1 |
| | | 3 | Psycho-education | Motivational interviewing techniques to help patients explore what they want to achieve | R: Relationship behaviour and mood A: Diary of activities and concurrent mood; writing down which ACS pictures are, or have once been relevant |
| 2. Purpose: Goal-setting | | | | | |
| 2 | Goal-setting | 4 | Goal-setting using ACS | Photo-interview, regarding the 'past, now & future' | R: Goal-setting A: Evaluating tentative goals |
| | | 5 | Goal selection: Interdisciplinary session with occupational or movement therapist and psychologist | Working towards three attainable goals taking into account individual physical and cognitive capacities | A: Evaluating and reading concrete plan for therapy goals |
| 3. Purpose: Exploring irrational cognitions and false beliefs | | | | | |
| 3 | Cognitive therapy | 6 | Introduction CBT: Recognising 'hidden cognition' | Check if patients understand three-step sequence; fill out one or two schemes with the patient to take home | R: Relationship thoughts and mood A: From three-step to four-step cognition schemas |
| | | 7 | Reflect on 'hidden cognition': Rational or irrational? | Discuss three-step sequences from homework assignments and introduce the hidden cognition/thought | R: Influence of thought on mood A: Four-step sequences: rational or irrational? |
| 4. Purpose: Challenging and altering cognitions and false beliefs | | | | | |
| 4 | Challenging 'negative cognitions' | 8 | Challenging irrational thoughts | Use motivational interviewing to support patients in challenging negative thoughts | R: Reconsidering thought patterns A: Changing irrational thoughts into helping thoughts |

(Continued)

Table 2. (Continued)

| Stage | Topic | Session | Therapeutic content | How: Therapeutic techniques | Homework |
|---------------------------------------|--------------------|---------|--|---|--|
| | | 9 | Changing cognitions | Support patients in replacing negative thoughts | R & A: See Session 8 |
| | | 10 | Changing cognitions consolidation | Therapists either assist in challenging thoughts or use this session for evaluation | R: Rephrasing irrational beliefs A: Evaluation of Session 8 and 9 |
| <i>5. Purpose: Relapse prevention</i> | | | | | |
| 5 | Relapse prevention | 11 | Signals of relapse and future strategies | Let patients evaluate their attained skills and goals. Support is given on topics patients want to improve | R: Keeping up the good work A: Signals for negative mood and future goals |
| | | 12 | Evaluation and termination | Prepare patients for future situations. Create a take-home relapse plan. Create four-step sequences for anticipated future situations | R: Evaluation of goal A: Set future goals, evaluate own progress |

A: assignment; ACS: Activity Card Sort; CBT: cognitive behavioural therapy; R: reading.

understood this sequence of occurrences, a fourth step ('hidden cognition') was added to the explanatory scheme (event → thought → feeling → behaviour).³⁴

- Hidden cognitions are thoughts that are not directly accessible, but can be made explicit by paying specific attention to the sequence of occurrences. During the homework assignments, the patient was advised to fill in the new 'four-step sequence': event → thought → feeling → behaviour (Figure 1). Once the patient was familiar with this technique, the psychologist explained that hidden cognitions may either have a negative or a positive influence on feelings and behaviour (see Box 2).³⁴
4. In *Stage 4* (three sessions), the patient was taught to challenge specific irrational, negative thoughts and to change these thoughts into rational 'helping' thoughts. The patient and psychologist together analysed concrete examples of four-step sequences, thereby teaching the patient to use these examples in homework assignments. Primarily, the patient's

three therapy goals were used as a basis to apply the four-step sequences. During the homework assignments, the patient practised reappraising events based on helping and rational thoughts (see Box 2). In this stage, the psychologist repeatedly tested whether the patient fully understood the four-step sequences and was constantly in close contact with the occupational or movement therapist to follow-up on goal attainment in terms of achieving actual behavioural change.

5. In *Stage 5* (two sessions), the treatment protocol was devoted to identifying relapse symptoms and evaluation. During the penultimate session, the psychologist discussed a possible future relapse of 'old' feelings and behaviours, which entailed listing the feelings that were once problematic. Subsequently, the patient was encouraged to manage recurrences of these feelings by applying the same cognitive behavioural techniques that were previously taught. Accordingly, he/she prepared a four-step scheme that could be used in future situations. The patient was stimulated to continue using a homework booklet after

the therapy had ended. The last session was used for evaluation by asking the patient's opinion about the treatment process.

Box 2: Recognising and adjusting irrational thoughts.

Patient RS suffered from a stroke one year earlier. He avoided visiting his football club since he had been involved in an 'embarrassing situation' in which he had called a friend by the wrong name. As the psychologist discussed this situation (wrong name for a friend) – his accompanying feelings (shame) – and ensuing behaviour (avoid going to social events), 'hidden thoughts' were explored by posing questions such as: 'What did you think at this particular moment?; Do people generally get labelled after misnaming a person?'. The patient described a hidden thought as 'off course the other person thinks I am an idiot'. Then, the irrational aspects of this particular thought were further explored by questions such as: 'Does this thought actually reflect reality?; Can you imagine a more realistic thought to deal with this situation?'. Accordingly, RS asked his friend what he thought of him. These experience made him believe that people did not actually consider him stupid. Moreover, RS now explains to people in advance that he sometimes tends to forget names or relevant information. Next to that, he often points out that it would be of help when people would signal his mistakes.

Discussion

Given the urgent need for an effective therapy,^{23,33} we developed an augmented cognitive behavioural therapy protocol for treating depressive symptoms after stroke. Because depression in the chronic post-stroke phase is assumed to be mainly reactive in nature, cognitive behavioural therapy may be the most promising treatment. The augmentation – which was a multidisciplinary approach using co-therapy by both a psychologist and an occupational or movement therapist – was expected to facilitate realistic goal-setting and effective goal attainment, by taking into account the individual patient's preferences, as well as his/her physical and cognitive capacities. The aim of the intervention was to give

patients with depressive symptoms (and possible concurrent feelings of anxiety) the cognitive tools to realise behavioural change, thereby improve their self-efficacy. At the same time, patients were taught to manage the functional consequences of their stroke more effectively. To reach this goal, we incorporated several suggestions from previous studies,^{23,24,33} and we adapted the cognitive behavioural therapy protocol by incorporating motivational interviewing,^{26,27} adding sessions devoted to grief resolution,²⁸ and addressing cognitive impairments using psycho-education²⁹ and CRASS communication principles.³⁵ Wherever possible, the functional consequences of stroke were optimised or compensated.^{23,30,31}

The treatment protocol presented here has several strengths and limitations. The major strength is that the proposed intervention is innovative, as it applies cognitive behavioural therapy in a stroke-adjusted manner, a feature not found in former applications of cognitive behavioural therapy for post-stroke depression. The intervention is also innovative because it supports goal attainment by incorporating occupational or movement therapy sessions. Another strength is that we included the treatment of concurrent anxiety complaints. Anxiety and depressive symptoms often co-occur following stroke. Moreover, feelings of anxiety can hinder the patients' actual performance of activities. Therefore, we addressed feelings of anxiety in our treatment protocol when applicable. Although we incorporated only a brief intervention for anxiety, we recognise that our treatment protocol may not be suitable for patients with severe anxiety disorders that require other therapeutic approaches, such as systematic desensitisation and graded exposure.³⁴

As for limitations, we acknowledge that a multifaceted treatment protocol is hard to test for its specific efficacy, because the various elements incorporated may differently contribute to mood improvement in different individuals. Indeed, research in the field of psychological interventions for post-stroke depression is in a 'proof-of-principle' stage, in which effective treatments or combinations of treatments are still sought after. More fine-grained analyses of effective or ineffective treatment elements should therefore be

subject of future studies. Although we incorporated nearly all of the suggestions made by Broomfield et al.,²³ we opted not to include executive skills training in our treatment protocol. Broomfield and colleagues reported that patients with severe executive problems are usually excluded from intervention trials for post-stroke depression, and argued that combining executive skills training with cognitive behavioural therapy may help such patients to better engage in therapy.²³ We do agree that such a combined treatment approach might be of value for some patients, however, we did not incorporate distinct executive skills training as a standard component, because such a treatment is relatively long and complex, which would unduly prolong the treatment in many patients without executive problems.

Clinical message

- Psychological interventions for post-stroke depression should be adjusted to the sensori-motor, cognitive, and behavioural impairments observed in many stroke survivors.
- Cognitive behavioural therapy is a promising method for treating post-stroke depressive symptoms and can take into account concurrent feelings of anxiety.
- Cognitive behavioural therapy for post-stroke depression can effectively be augmented with occupational or movement therapy to support individual patients in goal-setting and goal attainment, taking into account their physical and cognitive abilities.

Conflict of interest

The authors declare that there is no conflict of interest.

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